



Partners in Air – a unique partnership opportunity fostering air quality awareness

Partners in Air is an air quality and environmental education initiative that currently involves students and teachers in 13 Ontario secondary schools. Using program-sponsored equipment and materials, the students learn how to sample, test and analyze atmospheric contaminants and develop local air quality parameters. The program complements Ontario's secondary school science and technology curriculum, and is designed both to facilitate hands-on learning while building students' environmental awareness.

Taking a closer look at air quality

Air and water – two atmospheric partners that comprise the vital building blocks of life. No wonder, then, that environmental concerns continue to rank as high priorities in public surveys, and that air quality problems – such as smog – have an increasingly high profile in the 1990s.

The fact is, air quality is everybody's business. And there are good reasons to be concerned.

Smog is a particular concern in Ontario. Smog occurs under certain weather conditions when excessive atmospheric pollutants such as ground-level ozone, microscopic particulate and exhaust gases are present. Ontario produces some smog-related pollutants itself, and is located downwind from major pollutant-emitting facilities in the U.S.

Smog is known to worsen health problems for people who already suffer from diseases such as asthma and bronchitis. It has also been suggested as a contributing factor for premature deaths from respiratory illnesses.

As part of the government's efforts to address smog-related problems, the Ministry of the Environment (MOE) began a pilot program in 1997 to help students in 13 selected Ontario high schools develop a personal connection with air quality and environmental protection. The program – Partners in Air

(PIA) – is designed to be an innovative approach to teaching students more about the air they breathe.

Environmental education that's "up close and personal"

Partners in Air teaches students how to collect, test and analyze local air samples for atmospheric contaminants. They also learn how to use their results to build a scientific database, and establish a general picture of local air quality parameters in their area. Using the atmosphere around their own school as both raw material and laboratory, the students perform regular air quality monitoring assignments while learning about basic atmospheric science and meteorology, and the many factors that contribute to air pollution.

In addition to picking up cross-disciplinary science applications, participating students receive training on how to operate air quality monitoring equipment supplied by the program – from relatively simple devices such as passive air samplers and rain gauges, to more sophisticated devices such as pH meters and digital spectrophotometers.

Partners in Air also supplies the participating schools with a Pentium computer system, along with access to Internet services and ongoing curriculum and technical support.

Using their school's air quality monitoring data, the students learn how to build a profile of air quality in their area, recording their research and findings on the PIA Web site – www.partnersinair.org.

At the program's Web site, students and teachers can share and compare air quality data with their colleagues at other participating schools across the province. They can also "chat" with each other, using the site's electronic mail and discussion group features, and find links to other sites of interest that include the ministries of the Environment and Education, Environment Canada, Canada's School Net, and others.

Partnerships make PIA possible

To get PIA up and running, the ministry sought assistance from corporate partners – organizations that were willing to donate the money needed to purchase the program materials and the equipment Partners in Air would need to succeed. The corporate sponsors also share information and experience with students and teachers, bringing real life applications to the program.

The corporate response was prompt and enthusiastic, and Partners in Air received generous support from five inaugural companies:

- Dofasco Inc.
- Shell Canada Limited
- General Motors of Canada Limited
- Petro-Canada
- Ontario Power Generation Inc.

The companies' donations are used to purchase air monitoring and analysis equipment for Partners in Air schools, and to develop and produce curriculum materials for use in class. The corporate support also pays for in-service training and support for teachers, provides Internet services for each school,

helps MOE maintain the Partners in Air Web site, and makes laboratory analysis and support services available to the participating schools.

In return for their donations, Partners in Air sponsors receive corporate identification and recognition on program materials. Their generosity is also acknowledged by the corporate logos that appear on the program's Web site.

Hands-on learning for science and communications

One of the constant challenges of every teacher is to make approved curriculum seem fresh and new each year. Moreover, most teachers agree that students often learn best when they feel personally involved in hands-on projects. Partners in Air helps address both challenges by providing teachers with an innovative approach to the high school science and technology curriculum.

The PIA education program is divided into three parts:

- scientific and technical development and support
- Internet communications and
- integration of program activities and curriculum.

Scientific and technical development and support

The components of the scientific and technical development and support portion of PIA's education program include long-term student monitoring programs (non-curriculum) and short-term monitoring and testing projects (curriculum). The program offers curriculum materials on:

- techniques and methodologies for student monitoring
- teacher training for student monitoring

The high schools participating in the two-year Partners in Air pilot program include:

- A.B. Lucas Secondary School, London
- Birchmount Park Collegiate Institute, Scarborough
- Cobourg District West Secondary School, Cobourg
- Hammarskjöld Secondary School, Thunder Bay
- Huntsville High School, Huntsville
- Lorne Park Secondary School, Mississauga
- Monsignor Johnson High School, Toronto
- Riverside Secondary School, Windsor
- Sarnia Northern Collegiate Institute, Sarnia
- Sir Allan MacNab Secondary, Hamilton
- Sudbury Secondary School, Sudbury
- West Carleton Secondary, Dunrobin
- Widdifield Secondary School, North Bay

- on-site set-up of the air monitoring and testing equipment
- on-site set-up of meteorological stations, with real-time downloading of data to the program's computer
- on-going support in sample preparation and submission, tracking and data collection and reporting for student monitoring, including curriculum-related projects
- laboratory analysis loads for long-term student monitoring

Internet communications

Partners in Air helps teachers responsible for the high school communications curriculum by maintaining an interactive Web site that enables participating students to post, share and discuss the air monitoring data they collect at their school. The Web site encourages students to interact with each other, and gives them access to scientists in federal and provincial government agencies, as well as industry representatives.

Partners in Air's education program helps students learn about electronic information input, database creation, management and analysis, Internet access and research, and multi-Web site information sharing.

Participating students and teachers are provided with an Internet password that enables them to log on to the PIA Web site and input their air quality monitoring data on the program's custom-designed electronic forms. The PIA password ensures that only participating students and teachers can enter the shielded areas of the program's Web site. The Partners in Air home page, however, is open to participants, other students and members of the public who seek general information about the program, or hypertext links to other sources of air quality-related information.

The main components of the communications portion of Partners in Air include:

- an interactive Web site
- reporting protocols for student monitoring data, including data recording capabilities
- direct feed for on-site meteorology stations with real-time data
- on-line support and query mechanisms for both students and teachers

Integration of program activities and curriculum

The third educational aspect of Partners in Air is school integration – which helps participating teachers relate PIA's hands-on activities with relevant parts of Ontario's high school curriculum for science and communication. Successful integration of the hands-on air quality monitoring activities – which most students find highly enjoyable – with relevant high school curriculum ensures that Partners in Air, besides providing students with a lot of fun, also contributes in meaningful ways to their education.

For further information

on the Partners in Air program, call Tracy Patterson (905) 725-7819 or Dan Orr (416) 235-6351.

To enquire about corporate partnerships, please contact Kirsten Mania, Environmental Partnerships Branch, (416) 327-8072.

